13.

Further Notes on Certain Birds of Paradise.

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Red Bird of Paradise.
Uranornis rubra (Daudin).

The first male Red Bird of Paradise received at the Zoological Park arrived on December 27, 1915. During following years, three other males were obtained, the last on January 22, 1936. Notes on molt show periods that correspond, in general, with those observed in *Paradisaea.*[1] A young male, showing no development of head decoration, and lacking flank plumes and tail wires, began to molt on May 3, 1932. He appeared to have finished on August 10, 1932, requiring three months, as in immature males and all females of *Paradisaea.* In this molt, no plumes appeared but short, round wires, with feathered tips, were produced.

In the following year, the molt did not begin until June 25. Due to illness of the Curator, no date of the finish was recorded. During this molt, full head color, short flank plumes and short, flattened, slightly curved wires, were produced.

In 1934, the expected requirement of four months for the molt of the adult male, was established. This began on May 21 and was complete by September 25. The flank plumes were noticeably longer and better developed than those of the previous year. The wires, also, were much longer and fully spiral.

During the period following 1915, male Red Birds of Paradise were under almost constant observation but beyond occasional flapping of the wings, no attempt at display was noted. The short, stiff and recurved flank plumes suggested a display form of interest. It seemed almost certain that it must differ from that of *Paradisaea.*

The bird received in 1936 was in rather poor condition, with wires and plumes badly broken. However, he began molting in April and by the middle of August had completely finished. The length and development of the accessory plumage indicated that the bird was fully adult. In spite of all evidence of excellent condition, it was not until March 31, 1937, that the display was first seen. Early in that month, it became necessary to renew the perch then in use. A twisted section of red cedar was obtained which happend to have a branch extending downward from the trunk at an angle of about forty-five degrees. This appears to have been a most fortunate change, as this slanting branch took an important part in the display.

When first noticed, the bird was standing quietly, his body held stiffly parallel to the perch, with the head plumage fully distended. He then moved his wings slightly away from his body and vibrated them with great rap-

[1] *Zoologica,* Vol. XI, No. 7, December 3, 1932.

idity. The body was suddenly jerked to an erect position, and the wings were extended, the vibrating still continuing. The bird then lowered his body and started slowly down the slanting branch. When he reached the tip, the head being lower than the tail, he remained in fixed position for about twenty seconds. During this time the wings still were slightly spread and vibrating. The plumes were very slightly elevated, extending just above the body line, but distinctly not spread. As far as could be determined, their only function was to fill the spaces between tail and quivering wings.

When this form of frontal display had been completed, the bird turned about and hopped slowly up the branch. He leaped clear of the perch at each jump, alternating the feet in the forward position. This action caused the body to jerk violently from side to side, bringing the red plumes into greater prominence. Reaching the trunk of the cedar, he picked violently at a protruding knot and resumed the normal position.

This display routine was noted on several subsequent occasions, and showed no noteworthy variations. It seems quite possible that the presence of a slanting perch may be necessary for the full performance, since the frontal form appears to be the most essential part.

Twelve-wired Bird of Paradise.

Seleucides melanoleucus melanoleucus (Daudin).

Molting data for this species in the Zoological Park show an average period of three months for adults of each sex. Specific records are: male, April 7 to July 15; March 20 to June 25; May 20 to September 1; female, April 1 to July 1; March 12 to June 15.

Of two birds received here in August, 1929, the supposed female eventually proved to be a male. This bird went through normal molts until 1934, when, at the completion of the molt, it showed black patches on the head, neck, breast and edges of the wings. In 1935, the molt began on March 15. On its completion, about June 24, the bird was entirely clothed in the plumage of the adult male, except for the middle secondaries, rump, upper tail coverts and tail, which remained chestnut. The abdomen remained barred, with a strong yellow infusion. Short wires and a few small yellow flank plumes were produced. In the molt of 1936, beginning March 20 and ending June 25, the full male plumage was assumed, including fully developed wires and flank plumes. This bird, showing no signs of male plumage until it had been here for five years, and requiring seven years for completion of the change, showed a longer period of immaturity than any other bird of paradise under observation here. There is also the fact that it appeared quite adult on arrival, so that its actual age is greater than indicated by the dates given.

Partial displays by Twelve-wired Birds of Paradise are quite commonly seen, but most adult males seem to be rather shy. It was not until the bird referred to above, which was particularly tame and fearless, had acquired his final plumage, that a more complete routine was observed.

On March 5, 1937, the bird was observed with his body held parallel to the perch. The green breast plate was widely extended, while the yellow feathers of the lower breast and abdomen were tightly compressed, forming a strong contrast. The short flank plumes were slightly spread in the perpendicular plane, barely extending above and below the body line. With wings tightly closed, the bird leaped sideways to the trunk of the perch, seized it with its powerful feet and turned slowly around it. He frequently repeated a sharp, metallic, single note, opening his mouth widely for each call, showing the bright green interior. When the turn had been completed, the bird leaped back to the branch from which he had started. With the body again stiffly horizontal, breast plate still extended, abdominal feathers

still compressed and plumes slightly expanded, the wings were rapidly opened and closed, ten or twelve times. The usual rustling sound made by the wings in flight, was not detected. The normal position was then assumed. On another occasion, the bird spiralled slowly down the trunk of the perch, head downward, instead of going directly around it.

The great grasping power of the feet in this species, and the resultant ease with which it moves about its perches, in any direction, may well be accounted for by the extraordinary development of the short muscles of the metatarsus.